REMARKS

This amendment responds to the final office action dated May 5, 2008.

The Examiner rejected claims 1-25 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Watson, U.S. Patent No. 5,426,512 in view of Jones et al., U.S. Patent No. 6,349,151 (hereinafter Jones) and in further view of Fleet et al., U.S. Patent No. 5,949,055 (hereinafter Fleet). The Examiner's rejection of these claims is improper, as the respective techniques taught by these cited references are incompatible as the Examiner seeks to combine them.

Independent claim 1 describes a process where two spatial reconstructions of an image are created by separately quantizing, using two different sets of quantization values, a DCT transform of an image and then reconstructing the differently-quantized DCT transforms using a color difference model that simulates the perception of the human eye. These two spatial reconstructions are compared to the original image so as to select the set of quantization values that produces the more desired result. The quantization values are specified by claim 1 as being "calculated using data from said image."

Watson, the primary reference, discloses a quantization optimizer 36 that begins with an initialized quantization matrix having preset values, typically the maximum permissible, e.g. 255 in the JPEG standard. An image is quantized using these initial values, and a perceptual error is then measured using the initial quantization table. The measured perceptual error, along with image information is then used to update the quantization matrix. The process repeats iteratively until an acceptable perceptual error results. Thus, any updated quantization matrix in the cited primary reference is not only "calculated using data from said image" in contradiction to what is claimed in independent claim 1, but Watson does not describe a procedure of separately comparing two images, each reconstructed using different quantization values, so as to choose between them. Instead, Watson reconstructs a first image using a first quantization table, discards it if an error metric is too high, proceeds to another set of quantization values, etc.

Jones, conversely, uses a model of the human visual system to initially construct separate Q-tables, and based on the assumptions used in constructing the Q-tables, associates a respective quality parameter to each (in fact, the disclosed quality parameter is a viewing distance used to construct the respective Q-tables). Portions of an image are quantized using the different Q-

tables so as to estimate a file size that would result from each Q-table. These file sizes are then associated with the quality parameter associated with the Q-table that produces that file size, and a curve is constructed that relates file size to quality.

The Examiner argues that one of ordinary skill in the art, from Jones, would understand that the method of Watson could use Q-tables that are constructed without using image data. This argument is flawed for two reasons. First, it changes the principle of operation of the primary reference, which is an indicator of non-obviousness. Watson specifically employs an optimization procedure that minimizes an error metric individually calculated using image data quantized from successively used quantization tables. Eliminating the use of image data to improve on the quantization tables eviscerates Watson's entire procedure.

More fundamentally, however, Jones uses a difference model based on the perception of the human eye to construct the Q-tables in the first instance. If Jones were somehow used to modify the technique of Watson, as suggested by the Examiner to produce multiple quantized DCT values, the applicant's later claimed step of reconstructing respective images form the various Q-tables "using a visual difference model that simulates the perception of the human eye" would be superfluous; the Q-tables would already be based on such information.

Thus, for each of the foregoing reasons, one of ordinary skill in the art would not find the limitations of claim 1 obvious in view of any combination involving Watson and Jones, and independent claim 1, as well as its dependent claims 2-12, are patentably distinguished over the cited prior art.

Similarly, independent claim 25 recites limitations similar to those just recited with respect to independent claim 1, and is distinguished over the combination of Watson, Jones, and Fleet for the same reasons as is claim 1.

Independent claim 20 recites the limitation of "based upon said error measure, scaling said first set of quantization values by applying a single common scaling factor to each quantization value within said first set of quantization values, said scaling factor having a value not dependent on information from said first image. The Examiner cites Jones for the proposition that it teaches that Watson could be modified so as to use plural quantization values that are constructed without using image data. The plural Q-tables of Jones, however, are constructed using different respective scaling factors; if the method of Jones were substituted for that of

Watson, as suggested by the Examiner, this limitation of claim 20 would not be present in the combination.

Therefore claim 20, as well as its respective dependent claims 21-24, are each patentably distinguished over the cited prior art.

In view of the foregoing remarks, the applicant respectfully requests reconsideration and allowance of claims 1-25.

Respectfully submitted,

Kevin L. Russell
Reg. No. 38,292
Tel No.: (503) 227-5631